

17. *PISODONOPHIS BORO* (HAM.) FROM PERIYAR RIVER, KERALA COLLECTED AFTER MORE THAN A CENTURY

(With two text-figures)

The Western Ghats form the major watershed in Kerala and 44 rivers originate from them. Among these rivers, 41 flow westwards and the remaining flow east. In Kerala, Bharathapuzha and Periyar are considered the largest rivers. The west flowing rivers in Kerala are short and torrential due to heavy rainfall and steep gradient. The Western Ghats are ecologically one of the richest regions with great diversity of biological species. The complex topography, high rainfall, warm humid tropical climate, wide altitudinal variation and biogeographic isolation have produced a variety of ecological niches with unique plant and animal species. Diversity as well as endemism are equally represented in the Western Ghats. Fish genera like *Lepidopygopsis*, *Batasio*, *Travancoria* and *Horabagrus* are restricted to the hills of Kerala. The hillstreams and other water bodies located in the Western Ghats are very rich

in fish fauna. Most of the fish species in the Western Ghats are restricted to a specific habitat. A few of them show a short distance migration. The rice-paddy eel, *Pisodonophis boro* commonly inhabits lagoons and estuaries (Talwar and Jhingran, 1991). Day (1865) states that it inhabits seas and estuaries of India and Malaysia. *P. boro* is distributed in seas and estuaries throughout India, Pakistan, Bangladesh, Burma to Malaysia (Jayaram 1981).

Periyar river originates from the Sivagiri hill ranges, that lie on the border of Kerala and Tamil Nadu. At 244 km it is the longest river in Kerala. The study area is 75 km away from the river mouth. The specimens were collected from a particular site where a small stream joins the Periyar river on its right bank (Fig. 1). This stream is seasonal, and is bordered by mahogany and teak plantations.

The area was visited during different

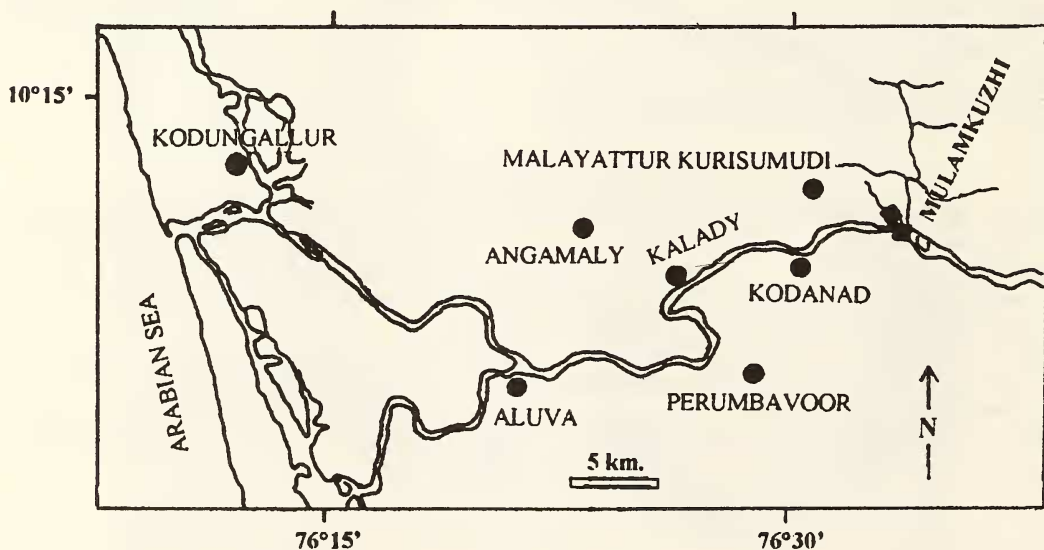


Fig. 1: Map of Periyar river showing collection sites of *Pisodonophis boro*

seasons of the year. Fish samples were collected from the river and nearby stream by cast nets, gill nets, scoop nets and temporary bunding and sieving with cloth. The rice-paddy eel, *P. boro* (Fig. 2) was collected by sieving with cloth during the monsoon season.

Water velocity was measured by an electronic flow meter and transparency by using Secchi disc. The other physical features of the habitat, viz., width, depth, substrate distribution, canopy cover and land use pattern were also assessed at the collection localities. Water DO, conductivity and temperature were measured in the field using standard methods. Works of Day (1865, 1878), Jayaram (1981), Datta Munshi and Srivastava (1988) and Talwar and Jhingran (1991) were referred for identification.

DISTINGUISHING CHARACTERS

D. 320-335, P. 12-13, A. 240-245.

The body of *Pisodonophis boro* is eel-like or vermiform and greatly elongated. The caudal portion is not much longer than the trunk. Head acutely convex and cleft of mouth moderate. Dorsal, anal and pectoral fins present but no fin at the end of the tail. Pectoral fin well developed. Enlarged head region; the collection site of *P. boro* is shown in Fig. 1.

The first report of *P. boro* from Kerala was by Day (1865) in his book FISHES OF MALABAR. It was subsequently included in his book THE FISHES OF INDIA (1878). Since then, this species has not been reported from Kerala (Pillay 1929, John 1936, Hora and Law 1941, Hora and Nair 1941, Chacko 1948, Silas 1950, Remadevi and Indra 1986, Easa and Shaji, 1997). Though mention was made in the books by Jayaram (1981) and Talwar and Jhingran (1991), its only actual report was by Day. During our recent survey, it was collected from a small stream near the famous mahogany grove at Mulamkuzhi (Fig. 1). This indicates that the area adjacent to the mahogany grove was comparatively richer in fish fauna than the main river. A total of 9 species belonging to

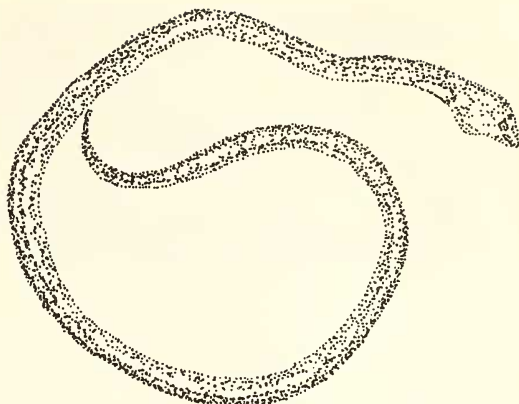


Fig. 2: *Pisodonophis boro*

4 families and 7 genera were collected from the stream, while only 4 species were collected from the main river. The following species were collected from the stream: *Puntius filamentosus*, *P. melanampyx*, *P. ticto*, *Danio aequipinnatus*, *Parluciosoma daniconius*, *Garra mullya* (Family Cyprinidae), *Glossogobius giuris* (Family Gobidae), *Xenentodon cancila* (Family Belontiidae) and *Pisodonophis boro* (Family Ophichthidae). *Puntius filamentosus*, *P. melanampyx*, *G. mullya* and *Glossogobius giuris* were found in the main river also. All these species have a wide distribution in Kerala and other parts of Western Ghats, except *Pisodonophis boro*. The present report confirms its occurrence in Kerala, indicating its establishment in freshwaters very far from the coastal area. Three specimens (total length 340, 360 and 406 mm) were collected from the study area.

The physico-chemical parameters of the main river and stream showed a low value of total dissolved solids in the main river (10 ppm) and a high value (30 ppm) in the stream. DO was never found to be a limiting factor, with least value of 4.2 mg/l. The DO value of the main river was 6.1 mg/l. pH in the main river was greater than in the stream (7.8). This is probably due to the use of soap and detergents by the populace. The water temperature was similar at

the two locations (26.3° C in the river and 26.9° C in the stream). High flow rate was measured in the river (50 cm/sec) while it was low (15 cm/sec) in the stream. The riparian vegetation was dominated by grasses and shrubs with little canopy value. The stream is very narrow, having a width of 2-3 m, while the river is 120 m wide. Detritus, mud and sand were the dominant substrates in the stream, whereas in the main river the main substrate was bedrock (80%) with mud and sand. *P. boro* was reported from the lowland area. At the study site, the substratum was dominated by detritus and mud which may be suitable for the survival of this species.

ACKNOWLEDGEMENTS

We thank the U.S. Fish and Wildlife Service and Ministry of Environment and Forests for sponsoring the project 'Ecology of Hillstreams of the Western Ghats with special reference to

Fish Community'; this paper is a part of the study carried out under the project. We thank Dr. K. Rema Devi, ZSI, Southern Regional Station, Chennai, for confirming the identification of the species and the Principal and Head of the Department of Zoology, Mar Thoma College, Perumbavoor, Ernakulam, for laboratory facilities and encouragement. We also thank Mr. V.O. Varghese, laboratory assistant for his help in the field.

December 2, 1998

M. JOHN GEORGE*

K. RAJU THOMAS

C.R. BIJU

C.R. AJITHKUMAR

*Bombay Natural History Society,
Hornbill House, S.B. Singh Road*

Mumbai 400 023.

**Mar Thoma College for Women,*

Perumbavoor, Ernakulam,

Kerala 683 542.

REFERENCES

- CHACKO, P.I. (1948): Development of fisheries of the Periyar lake. *J. Bombay nat. Hist. Soc.* 48: 191-192.
- DATTA MUNSHI, J.S. & M.P. SRIVASTAVA (1988): Natural history of fishes and systematics of freshwater fishes of India. Narendra Publishing House, New Delhi.
- DAY, F. (1865): Fishes of Malabar. Bernard Quaritch, London. repr. Bishen Singh Mahendrapal Singh, Dehra Dun.
- DAY, F. (1878): The Fishes of India; being a natural history of the fishes known to inhabit the seas and freshwaters of India Burma and Ceylon. Repr. Jagminder Book Agency, New Delhi.
- HORA, S.L. & N.C. LAW (1941): The freshwater fishes of Travancore. *Rec. Ind. Mus.* 43: 234-256.
- HORA, S.L. & K.K. NAIR (1941): New records of freshwater fishes from Travancore. *Rec. Ind. Mus.* 43: 233-256.
- JAYARAM, K.C. (1981): The freshwater fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka - A hand book. Zoological Survey of India, Calcutta.
- JOHN, C.C. (1936): Freshwater fishes of Travancore. *J. Bombay nat. Hist. Soc.* 38: 702-733.
- PILLAY, R.S.N. (1929): Fishes of Travancore. *J. Bombay nat. Hist. Soc.* 33: 347-379.
- REMADEVI, K. & T.J. INDRA (1986): Fishes of Silent Valley. *Rec. Zool. Sur. India.* 84: 243-257.
- SILAS, E.G. (1949): On a collection of fish from Travancore. *J. Bombay nat. Hist. Soc.* 48: 792-797.
- TALWAR, P.K. & A.G. JHINGRAN (1991): Inland fishes of India and adjacent countries. Oxford and IBH Publishing Co, New Delhi.

18. NEW RECORD OF *HETEROPNEUSTES MICROPS* (GUNTHER)
(CLARIIDAE: HETEROPNEUSTIDAE) FROM WESTERN GHATS RIVERS, INDIA

(With one text-figure)

The stinging catfish of the genus *Heteropneustes* are found in rivers, ponds and shallow water bodies. *H. fossilis* and *H. microps*

are the two known species of this genus. Among these, *H. fossilis* has a wide range of distribution and is very common along the Western Ghats.